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EXAMINER	
ZEWDU, MELESS NMN	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/616,292	HOTTINEN, ARI	
	Examiner	Art Unit	
	Meless N. Zewdu	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 April 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-65* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to request for consideration

1. This action is in response to the communication filed on 4/5/07.

2. Claims 1-65 are pending in this action.

3. This action is final.

4. **Remarks**: examiner notes that claims 18 and 52, which were initially objected and later rejected (the objection was withdrawn), were shown as objected in form PTOL-326). Although the body of the claims show that these claims were rejected, it was inappropriate to have them left as still objected. These claims in this action have been removed from the paragraph in PTOL-326 that shows claims objected.

Claim Rejections - 35 USC § 103

Claims 1-3, 5-12, 15, 17, 19, 23-25, 29, 31-32, 34-45, 49, 51, 53 and 57-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wax et al. (Wax) (US 6,249,680 B1) in views of Iwamura et al. (Iwamura) (US 2005/0009528 A1).

As per claim 1: Wax discloses a method for performing positioning in a radio system (see abstract), the method comprising:

transmitting at least one signal to at least two different channels, each signal being suitable for channel estimation (see abstract; figs. 1, 4 and 6; col. 4, lines 21-49);

receiving, in a receiver, said at least one signal through at least two different channels (see abstract);

estimating on the basis of said at least one received signal from the at least two different channels, a spatial signature of the channels (see abstract), and

defining, on the basis of the spatial signature, information related to the location of a receiver or a transmitter of the at least one signal (see abstract). But, Wax does not explicitly teach about at least one identifier (channel or signal identifier), as claimed by applicant. However, in the same field of endeavor, Iwamura et al. (Iwamura) teaches about channel identifier assigning method and mobile communication system, wherein sectors (base stations) are assigned channel identifiers which they in turn send/provide them to mobile stations (see paragraphs 0015, 0026, 0029, 0030, 0032). Note: when Wax's reference is provided/modified with Iwamura's channel identifier, Wax's estimation of the spatial signature will be based on channels identified by the channel identifier/s, according to the teaching of Iwamura. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to assign/provide channel identifier/s to mobile stations for the advantage of a mobile station to reduce power conception or time required to carry out neighborhood cell search (see paragraph (0014).

As per claim 2: Wax discloses a method, further comprising: defining as the information related to the location at least one direction between the receiver and transmitter based on the spatial signature of the signals (see abstract; col. 4, lines 21-49).

As per claim 3: Wax discloses a method, further comprising, defining the information related to the location by comparing an estimated spatial signature with known spatial signatures and defining as the location a position whose known spatial signature is closest to the estimated spatial signature (see abstract; col. 4, lines 21-49, lines 50-65).

As per claim 5: Wax discloses a method, further comprising: defining the information related to the location according to the map coordinate system when the location of at least the transmitter or receiver is specified in a map coordinate system (see col. 12, lines 15-31).

As per claim 6: Wax discloses a method, further comprising: forming the spatial signature by utilizing several channel estimate matrices generated at different time instants (see (see claims 4-6; col. 9, line 44-col. 10, line 31).

As per claim 7: Wax discloses a method, further comprising: forming the spatial signature by utilizing several channel estimate matrices generated on different frequencies (see col. 8, lines 9-28).

As per claim 8: Wax discloses a method, further comprising: forming the spatial signature by utilizing several channel estimate matrices calculated from different reception antennas (see fig. 4; 5, line 49-col. 6, line 18).

As per claim 9: Wax discloses a method, further comprising: generating at least one covariance matrix of at least one channel and forming the spatial signature by means of at least one specific vector of the covariance matrix (see claims 3-6; col. 8, lines 9-28).

As per claim 10: Wax discloses a method, further comprising: generating a singular value decomposition for a channel estimate matrix, by means of which specific value

vectors of the covariance matrix are defined for the definition of the information related to the location (see claims 4-6; col. 8, lines 9-28).

As per claim 11: Wax teaches a method, defining a first dominant delay path by utilizing specific values of the channel covariance matrix calculated for different delay paths or the channel singular values in such a manner that the dominant delay path is the path having the highest specific value energy (see col. 8, lines 9-28).

As per claim 12: Wax discloses a method, further comprising: defining a first delay path whose specific value energy exceeds a predefined threshold value (see abstract). Examiner considers the calibrated signal signatures as threshold/s.

As per claim 15: Wax discloses a method, wherein in the receiving of said at least two identifier signals, the identifier signals are at least partly uncorrelated (see col. 4, lines 21-49). Polarized signals/channels are uncorrelated.

As per claim 17: Wax discloses a method, using the elements or parameters of the channel estimate corresponding to the shortest delay in the spatial signature of the signals (see col. 5, lines 5-23; col. 6, lines 48-52).

As per claim 19: Wax teaches a method, generating the identifier/code signals by coding the signals to be substantially non-interfering to each other (see col. 4, lines 21-49).

As per claim 23: Wax discloses a method, further comprising: signaling the spatial signatures or the parameters of the spatial signatures of the received signals to a base station and defining the location of the terminal in the network part of the radio system (see col. 6, lines 24-36).

As per claim 24: Wax discloses a method, further comprising: using one or more base stations in defining the location of the terminal (see col. 9, lines 21-41).

As per claim 25: Wax discloses a method, further comprising: calculating the received power based on the spatial signature of the signals and maximizing the received power in relation to the transmission direction for the purpose of defining the information related to the location between the transmitter and receiver (see col. 4, lines 21-65; col. 11, line 62-col. 12, line 14).

As per claim 29: Wax teaches a method, wherein the identifier signals are channel specific training sequences (see abstract; col. 6, lines 1-18).

As per claim 31: the features of claim 31 are similar to the features of claim 1, except claim 31 is directed to a system/means for performing the steps of method claim 1. Hence, the system/means is required by the method, claim 31 is rejected on the same ground and motivation as claim 1.

As per claim 32: the feature of claim 32 is similar to the feature of claim 2. Hence, claim 32 is rejected on the same ground and motivation as claim 2.

As per claim 34: the feature of claim 34 is similar to the feature of claim 3. Hence, claim 34 is rejected on the same ground and motivation as claim 3.

As per claim 35: the feature of claim 35 is similar to the feature of claim 5. Hence, claim 35 is rejected on the same ground and motivation as claim 5.

As per claim 36: the feature of claim 36 is similar to the feature of claim 6. Hence, claim 36 is rejected on the same ground and motivation as claim 6.

As per claim 37: the feature of claim 37 is similar to the feature of claim 7. Hence, claim 37 is rejected on the same ground and motivation as claim 7.

As per claim 38: the feature of claim 38 is similar to the feature of claim 8. Hence, claim 38 is rejected on the same ground and motivation as claim 8.

As per claim 39: the feature of claim 39 is similar to the feature of claim 9. Hence, claim 39 is rejected on the same ground and motivation as claim 9.

As per claim 40: the feature of claim 40 is similar to the feature of claim 10. Hence, claim 40 is rejected on the same ground and motivation as claim 10.

As per claim 41: the feature of claim 41 is similar to the feature of claim 11. Hence, claim 41 is rejected on the same ground and motivation as claim 11.

As per claim 42: the feature of claim 42 is similar to the feature of claim 12. Hence, claim 42 is rejected on the same ground and motivation as claim 12.

As per claim 43: the feature of claim 43 is similar to the feature of claim 13. Hence, claim 43 is rejected on the same g round and motivation as claim 13.

As per claim 44: the feature of claim 44 is similar to the feature of claim 14. Hence, claim 44 is rejected on the same ground and motivation as claim 14.

As per claim 45: the feature of claim 45 is similar to the feature of claim 15. Hence, claim 45 is rejected on the same ground and motivation as claim 15.

As per claim 49: the feature of claim 49 is similar to the feature of claim 29. Hence, claim 49 is rejected on the same ground and motivation as claim 29. Furthermore, a signature represents specific training sequence.

As per claim 51: the feature of claim 51 is similar to the feature of claim 17. Hence, claim 51 is rejected on the same ground and motivation as claim 17.

As per claim 53: the feature of claim 53 is similar to the feature of claim 19. Hence, claim 53 is rejected on the same ground and motivation as claim 19.

As per claim 57: Wax discloses a radio system, wherein the terminal is further configured to signal the spatial signatures or the parameters of the spatial signatures of the received signals to the base station and to define the location of the terminal in the network part of the radio system (see col. 4, lines 21-65).

As per claim 58: the feature of claim 58 is similar to the feature of claim 24. Hence, claim 58 is rejected on the same ground and motivation as claim 24.

As per claim 59: the feature of claim 59 is similar to the feature of claim 25. Hence, claim 59 is rejected on the same ground and motivation as claim 59.

As per claim 60: the features of claim 60 are similar to the features of claim 1. Hence, claim 60 is rejected on the same ground and motivation as claim 1.

Claims 4, 16, 20, 33, 46 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wax in view of Iwamura, applied to claims 1 and 31 above, and further in view of Paulraj et al. (Paulraj) (US 6,351,499 B1).

As per claim 4: but, Wax in view of Iwamura does not explicitly teach about transmitting an identifier from at least two different antenna elements in order to transmit the identifier signals through at least two different channels; in other words, Wax is silent as whether the signals received by the rake receiver of the base station were transmitted from a transmitter with two antennas, as claimed by applicant. However, in a

related field of endeavor, paulraj teaches about a communication system wherein both the transmitter and receiver are exchanging signals/communication via multiple antennas (using M and N antennas respectively) (see figs. 1 and 2; col. 3, lines 42-58; col. 4, lines 33-45). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to further modify the above references with the teaching of Paulraj for the advantage of maximizing signal quality or throughput of a channel between a transmit and receive unit (see col. col. 3, lines 43-52).

As per claim 16: Paulraj teaches about a method, wherein the receiving of said at least two identifier signals, the identifier signals are orthogonal (see col. 8, lines 47-67). Motivation is same as provided in the rejection of claim 4.

As per claim 20: the feature of claim 20 is similar to the feature of claim 4. Paulraj's reference includes FDMA (different frequencies) (see col. 4, lines 26-32). Therefore, claim 20 is rejected on the same ground and motivation as claim 4.

As per claim 33: the feature of claim 33 is similar to the feature of claim 4. Hence, claim 33 is rejected on the same g round and motivation as claim 4.

As per claim 46: the feature of claim 46 is similar to the feature of claim 16. Hence, claim 46 is rejected on the same ground and motivation as claim 16.

As per claim 54: the feature of claim 54 is similar to the feature of claim 4. In that, the different paths provided in Paulraj require different channels/frequencies. Therefore, claim 54 is rejected on the same ground and motivation as claim 4.

Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wax in view of Iwamura, as applied to claim 1 above, and further in view of Grubeck et al. (Grubeck) (US 6,009,334).

As per claim 13: but, Wax in view of Iwamura, does not explicitly teach about measuring direction of arrival (DOA) and angle of arrival (AOA) for purpose of comparing direction of reception, as claimed by applicant. However, in the same field of endeavor, Grubeck teaches a method of, utilizing additionally in the positioning at least one of the following measurements:

defining the direction of arrival as a DOA measurement (see at least, col. 1, line 55-col. 2, line 10; col. 6, lines 16-52). The required feature, the at least one measurement, is satisfied by the prior art's DOA measurement. Furthermore, the prior art's ('334) line of sight (LOS) selection, which is a function of direction), obviates the claimed feature of comparing the direction of reception and transmission signals with each other. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the teaching of Wax with that of Grubeck for the advantage of more accurately determining distance and/or the position of a mobile radio terminal (see col. 1, lines 8-11; col. 1, lines 21-48).

As per claim 14: Grubeck teaches a method, utilizing additionally in the positioning at least one of the following measurements:

measuring the time of arrival as a TOA measurement (see col. 6, lines 7-52),

measuring the time difference of arrival as a TDOA measurement (see col. 6, lines 7-52),

for the purpose of defining the distance between the transmitter and receiver (see col. 1, lines 48-55). Motivation is same as provided in the rejection of claim 13.

Claims 21-22, 26-28, 47-48 and 55-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over the references applied to claims 1 and 31 above, and further in view of Cedervall et al. (Cedervall) (US 6,011,974).

As per claim 21: Wax does not explicitly teach about a method wherein a terminal serves as the receiver and perform its own position, as claimed by applicant. However, in a the same field of endeavor, Cedervall teaches about a system and method for determining position of a cellular mobile terminal wherein the mobile terminal is provided with means to determine its own position (see col. 4, line 56-col. 5, line 23). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to further modify the above references for the advantage of providing an improved method and system for determining the position of a mobile radio terminal (see col. 1, lines 7-10).

As per claim 22: Cedervall teaches a method, further comprising signaling necessary information (could be any usable information) on the antenna structure or antenna element location of the base station to the terminal (see col. 8, lines 18-36).

As per claim 26: the feature of claim 26 is similar to the feature of claim 21. Hence, claim 26 is rejected on the same ground and motivation as claim 21.

As per claim 27: Cedervall teaches a method, wherein the identifier signals are broadcast signals (see col.3, lines 37-67, particularly, lines 454-52). A signal from one source to many is a broadcast.

As per claim 28: Cedervall teaches a method, wherein the identifier signals are common pilot channel signals of a WCDMA radio system (see col. 2, lines 47-52; col. 2, lines 37-67; col. 7, lines 27-47).

As per claim 47: the feature of claim 47 is similar to the feature of claim 27. Hence, claim 47 is rejected on the same ground and motivation as claim 47.

As per claim 48: the feature of claim 48 is similar to the feature of claim 28. Hence, claim 48 is rejected on the same ground and motivation as claim 28.

As per claim 55: the feature of claim 55 is similar to the feature of claim 21. Hence, claim 55 is rejected on the same ground and motivation as claim 21.

As per claim 56: the feature of claim 56 is similar to the feature of claim 22. Hence, claim 56 is rejected on the same ground and motivation as claim 22.

Claim 18, 30, 52 and 61-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wax in view of Iwamura and further in view of Hotteinen et al., © 2000. For examination purpose, claim 61 is considered first.

As per claim 61: the features of claim 61 are similar to the features of claim `1, except the transmitter antenna is reuired to have at least two antenna elements, as claimed by applicant, and which is taught by Hottinen which provides two transmit antenna elements (see page 70-73). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made modify Wax in vie Iwamura with the teaching of Hottinen for the advantage of satisfying the need of transmit diversity in the 3G systems (see introduction).

As per claim 62: the features of claim 62 are similar to the features of claim 61. Hence, claim 62 is rejected on the same ground and motivation as claim 61.

As per claim 63: some of the features of claim 63 are similar to the features of claim 62s and 1. The difference feature wherein the a receiver (other than the base) to estimate a spatial signature is taught by Hottinen et al. (see page 72). Hence, claim 63 is rejected on the same ground and motivation as claim 61.

As per claim 64: the features of claim 64 are similar to the features of claim 61. Hence claim 64 is rejected on the same ground and motivation as claim 61.

As per claim 65: the features of claim 65 are similar to the features of claim 61. Hence, claim 65 is rejected on the same ground and motivation as claim 61.

As per claim 30: Hottinen teaches a method, wherein the identifier (identifier is provided above) signals are transmitted on a dedicated (see at least page 71, second column). Motivation is same as provided in the rejection of claim 61.

As per claim 18: Hottinen teaches a method a method, further comprising generating the identifier signals in such a manner that the signals are transmitted from the different antenna elements at different times (see page 72, first column). A reference is made, particularly, to time –orthogonality. Motivation is as provided in the rejection of claim 61 above.

As per claim 50: the feature of claim 50 is similar to the feature of claim 30. Hence, claim 30 is rejected on the same ground and motivation as claim 30.

As per claim 52: the feature of claim 52 is similar to the feature of claim 18. Hence, claim 52 is rejected on the same ground and motivation as claim 18.

Response to Arguments

Applicant's arguments filed 4/5/07 have been fully considered but they are not persuasive. Examiner, hereunder, provides corresponding responses to applicant's arguments.

Argument I: with regard to at least claims 60 (claim 61 includes the same feature), applicant argues by saying that Wax's does not disclose or suggest direction of transmission (DoT) and instead, directed to direction of arrival (DoA).

Response I: examiner respectfully disagrees with the argument for the following reasons. (1) Wax teaches a transmitter location finding, including the use of direction information (see col. 2, lines 44-56; col. 4, lines 30-39). Hence, that argument that direction of transmission is not disclosed or suggested is unsubstantiated.

Argument II: Applicant further argues by saying "the cited references fail to disclose or suggest the feature of transmitting at least one signal to at least two different channels, each signal being suitable for channel estimation, and receiving, in a receiver, said at least one identifier signal through at least two different channels, as recited in claim 1 and similarly recited in claims 31 and 60.

Response II: examiner respectfully disagrees with the argument. In that, Wax discloses a base station, having antenna array, determines a signal signature (which includes location information) received in multi-path signals (see col. 4, lines 21-49) including distinguishable PN spreading sequences (see col. 6, lines 1-6), which could read on the channel identifier signal. However, since it (the PN) was not labeled as identifier,

examiner opted to use Iwamura's reference which teaches about assigning channel identifiers to sectors in a mobile communication system (see paragraphs 0015, 0026, 0029, 0030, 0032), the use of which enhances the accuracy of neighboring search cell search (location search) using as small amount of information as possible (see paragraphs 0008, 0014). It is to be noted that Wax's antenna array can transmit an receive multiple channels and when this reference is modified with Iwamura's channel identifier/s, the identifier/s could be transmitted and/or received via the plurality of multi-path channels/signals.Thus, the argument is not convincing to overcome the outstanding rejection.

Argument III: with regard to claims 4, 16, 20, 33, 46 and 54, applicant asserts that Iwamura is not relied upon to discloses this feature, and Paulraj fails to cure the deficieny of WAX.

Response III: examiner notes that Wax in view of Iwamura, is used to rejected independent claims 1 and 31, from which claims4, 16, 20, 33, 46 and 54 depend. But, inadvertently left out Iwamura in the rejection of dependent claims 4, 16, 20, 33, 46 and 54. In other words, the heading should have Wax in view of Iwamura, instead of Wax alone. Because Wax alone does not disclose the features of claims 1 and 32, it could not have been used without Iwamura in the rejection of dependent claims 4, 16, 20, 33, 46 and 54. While this issue is properly fixed in this action, examiner regrets any inconvenience this may have caused applicant.

Argument IV: with regard to claims 13 and 14, applicant asserts that the references, in combination or alone, fail to teach the features of claim 13 and 14.

Response IV: examiner respectfully disagrees with the argument. In that the features of claims 13 and 14 call for at least one measurement parameter to be satisfied and that is provided by Grubeck et al., as being direction of arrival measurement (DOA) and alternatively TDOA), as recited and discussed in the rejection of the claims in question.

Argument V: with regard to claims 21, 22, 26-28, 47, 48, 55 and 56, applicant argues by saying that the cited references, taken alone or in combination, fail to disclose or suggest all of the features of the above claims.

Response V: examiner respectfully disagrees with the argument. In that Cedervall, as discussed in the body of the rejection of the claims in question, teaches the mobile determining its own location for example as called by (claims 21, 55), common pilot channel signals of WCDMA , as called by (claims 28, 48). Please refer to the body of the rejection of the claims in question for the cited portions of Cedervall for each of these claims.

Argument VI: with regard to claims 18, 30, 52 and 61-65, applicant asserts that the cited references, taken individually or in combination, fail to discloses or suggest all of the features of any of the above claims.

Response V: examiner respectfully disagrees with the argument. Honttinen provides a WCDMA transmit diversity wherein a terminal receives the diversity signal from a diversity antenna and estimates the downlink which is transmitted back as feedback. Please refer the cited portions in Hottinen's reference for each of these claims.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Meless N. Zewdu whose telephone number is (571) 272-7873. The examiner can normally be reached on 8:30 am to 5:00 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Appiah, Charles can be ached on (571) 272-7904. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Any inquiry of a general nature relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2600.

Meless Zewdu

Primary examiner

18 June 2007.